

REMARKS/ARGUMENTS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 15-29 are pending in the application, with Claims 15-17, 22-23 and 28-29 amended by the present amendment.

In the outstanding Office Action, Claims 15, 28 and 29 were rejected under 35 U.S.C. § 112, second paragraph; Claims 22-23 were rejected under 35 U.S.C. § 101; Claims 15-17 and 28-29 were objected to; the specification was objected to; the Title was objected to; Claims 15, 18, 20, 22, 25 and 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen et al. in view of Lee (U.S. Patent No. 6,539,225); Claims 16, 19, 21 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Lee and Malki et al. (U.S. Patent Publication 2001/0046223); Claim 17 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Lee and Applicants' admitted prior art (hereinafter APA); Claim 24 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Lee and Zhang et al. (U.S. Patent No. 6,741,575, hereinafter Zhang); Claim 26 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Lee and Boudreaux (U.S. Patent No. 6,466,556); and Claims 28-29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Malki and Applicants' admitted prior art.

Claims 15-17, 22-23 and 28-29, the specification and Title are amended to overcome the outstanding objections and rejections under 35 U.S.C. § 112, second paragraph, and 35 U.S.C. § 101. Claims 15-17 and 28-29 are further amended to more clearly describe and distinctly claim Applicants' invention. Support for these amendments is found in Applicants' originally filed specification. No new matter is added.

Briefly recapitulating, amended Claim 15 is directed to a method of performing a handoff when a mobile terminal equipment is moving from a previous foreign agent to a new foreign agent in a mobile IP network. When starting a handoff, a regional registration of the mobile terminal equipment is performed at a home agent so as to doubly register an address of the mobile terminal equipment by the previous foreign agent and the new foreign agent. It is then determined whether an IP packet is received by the home agent during the handoff is a real-time IP packet or a non-real-time IP packet. A real-time IP packet received by the home agent during the handoff is bicast to both the registered previous foreign agent and the registered new foreign agent. A non-real-time IP packet received by the home agent during the handoff is buffered. When the handoff is completed, the regional registration at the home agent is updated so only the new foreign agent is registered. A buffered non-real-time IP packet received during the handoff is transferred from the home agent to the foreign agent. In Claims 15-17, the buffering is performed at the home agent, the gateway agent and the previous foreign agent, respectively.

Chen discloses a method and system for buffering non-real time traffic and directed multicasting real time traffic during a mobile handover. Chen describes a conventional method as where each mobile is always identified by a unique home address, regardless of its current point of connection to the internet. While away from a home network, the conventional system described by Chen includes using a care-of-address for the mobile. The home address sends datagrams to the care-of-address. During handoff, packets are multicast to all base stations neighboring the care-of-address so that if and when the mobile moves to a particular cell, packets are awaiting. Chen describes this conventional technique as not cost effective.¹ The conventional systems described by Chen do not include any registration.

¹ Chen, page 442, left column lines 18-41.

To improve cost-effectiveness, Chen describes a new method where traffic is identified as either real-time or non-real-time and the mobile handover includes a step of registering both a previous and a future base station. In particular, Chen describes that when the new base station receives a registration reply from the home agent, the old base station is notified at the same time. The old base station opens a connection to the new base station and forwards all information about the mobile's TCP connection. Chen describes that if the new base station receives a [non-real-time] data packet before the handoff is complete, the new base station will buffer it for delivery to the mobile after the handoff.² However, Chen does not disclose or suggest buffering at the home agent or the gateway agent (which is clearly recited as being different from the previous or new foreign agent) as recited in Claims 15-17 or Claims 28-29.

Applicants' apparatus recited in Claims 15-16 and 28-29 allows for a simpler configuration and operation than is possible with Chen. In the claimed invention, the home agent (HA) or gateway agent (GA) includes a buffer and performs the judging and buffering with the following effect. Although, in conventional systems, the buffer can be formed in a common area other than the HA or GA, such a configuration requires an interface between the HA/GA and the buffer, an interface between the FA and the buffer, and synchronous operations between the HA/GA and the FA. On the contrary, because the claimed HA/GA includes a buffer and performs both the judgment and buffering in the same unit, it is not necessary for the FA to interface directly to the buffer. Therefore, in the devices recited in Claims 15-16 and 28-29, the HA/GA can perform the entire control operation. Thus, the FA can thereby have a simpler configuration than is possible with Chen.

Furthermore, for real-time traffic (e.g., audio or multimedia applications), Chen discloses a step of direction-based multicasting, where real-time traffic is not buffered but is

² Chen, page 442, left column, line 42 – right column, line 22.


multicast from the home agent to the current base station and to other neighboring base stations that appear to be candidate new base stations, as determined by a mobile signal strength/direction analysis. Chen does not describe registration-based multicasting. That is, Chen does not disclose or suggest multicasting to a registered previous agent and a registered foreign agent as recited in Claims 15-17 and 28-29. That is, the registration described by Chen is only used for transmitting non-real-time traffic, not for real-time traffic.

Applicants have considered the remaining applied references and submit these references do not cure the deficiencies of Chen. MPEP §706.02(j) notes that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Also, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Without addressing the first two prongs of the test of obviousness, Applicants submit that the Official Action does not present a *prima facie* case of obviousness because each of the references fail to disclose all the features of Applicants' claimed invention.

Accordingly, in view of the present amendment and in light of the previous discussion, Applicants respectfully submit the present application is in condition for allowance and respectfully request an early and favorable action to that effect.

Respectfully submitted,

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